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EXAMINER

VOLPER, THOMAS E

ART UNIT PAPER NUMBER

2665

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/522,608

Applicant(s)

NOZAWA, YOSHIAKI

Examiner

Thomas Volper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>10</u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____   |

### **DETAILED ACTION**

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

#### ***Information Disclosure Statement***

2. The information disclosure statement filed 24 July 2002 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered. In response to the Applicant's assertion that the publication "1994 Electronic Information Communication Association; Spring Conference B-765" does include a concise explanation of relevance, the Examiner acknowledges the assertion and has considered that reference. However, the Japanese documents 6-90236 and 9-8838 have no concise explanation of relevance, and have not been considered.

#### ***Response to Arguments***

3. Applicant's arguments filed 28 May 2003, with regard to claim 1, have been fully considered but they are not persuasive.

4. In response to Applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the

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teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Applicant asserts that “the technology and techniques disclosed for Asynchronous Transfer Mode (ATM) networks in Zhang and Duault cannot be combined with a digital subscriber loop (DSL) in Jones” and that “Jones does not disclose or suggest techniques for ATM networks” (page 3 of ‘Remarks’). Furthermore, the Applicant goes on to express personal opinion for the combination of references being “nonsensical” and argues “No person skilled in the art would consider combining, or even suggest the compatibility of, DSL and ATM networks” (page 4 of ‘Remarks’). However, the Examiner would like to draw the Applicant’s attention to US Patent 6,181,711 by Zhang et al. (col. 6, lines 49-55), which states “The transmission system (204) may be any one of a number of conventional transmission systems, including but not limited to A[DS]L, ATM/ADSL, ATM, ISDN links ...”. This statement clearly suggests the possibility of such a contrivance as a system combining ATM and DSL features. In addition, US Patent 6,307,836 by Jones et al. plainly includes features undeniably related to ATM such as available bit rate (ABR), variable bit rate (VBR) and constant bit rate (CBR) (col. 4, lines 13-28). Moreover, Jones et al. discloses that a person of ordinary skill in the art could build the subscriber interface device (106) and network interface device (108), of that invention, by using the Q.2931 ITU-T recommendation for B-ISDN or ATM (col. 10, lines 27-31). Obviously, the inventions of Zhang et al. and Jones et al. are in the same field of endeavor.

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For at least the reasons presented above, it is obvious that anyone of ordinary skill in the art could easily have combined the inventions of Zhang et al., Duault et al. and Jones et al.

5. In response to Applicant's argument that the references, if combined, do not teach the present invention. Applicant argues "Methods for preventing data loss and maximizing the use of channel bandwidth do not teach or suggest the claimed invention" and "statistical multiplexing gain and re-negotiation gain are performed in comparison with singular channels from individual channels", (page 6 of 'Remarks'). The fact that Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Zhang et al. provides a statistical multiplexer that combines streams from several sources and combines them into a single stream to be outputted onto a channel (col. 14, line 57 – col. 15, line 3; see also Figure 8). Duault et al. provides a system of connecting two private ATM networks to a public ATM network, wherein the private networks connect to the public networks via private ATM switches (see Figure 1). Jones et al. shows that a statistical multiplexer is actually a type of switch (see Figure 1). Statistical Multiplexer (116) is used in combination with Local Switch Fabric (110) to produce the statistically multiplexed Transport Bandwidth (112). Furthermore, Jones et al. discloses a benefit for statistical multiplexing multiple subscriber data signals onto a single transport bandwidth, which is economic savings to customer and carrier (col. 6, line 61 – col. 7, line 4). This provides a rationale for replacing the private ATM switches in Duault with the statistical multiplexer from Zhang, which clearly teaches the claimed invention with respect to claim 1.

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6. In response to Applicant's argument that Duault requires "a significant amount of logic, over and above even a direct ATM network connection would at least be required prior to using Duault's ATM network with any effectiveness" (page 7 of 'Remarks'), the claimed invention does not exclude the necessary logic to make the combination of two private ATMs, a public ATM, and two statistical multiplexers function properly. The non-exclusive language used by Applicant in claim 1 is "A statistical multiplex transmission system ... comprising". Thus, the Examiner contends that the combination of a statistical multiplexer and private and public ATMs may be successfully formed from those elements provided by Zhang et al. and Duault et al.

7. Applicant's arguments with respect to claims 2-6 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US 6,181,711) in view of Duault et al. (US 6,108,336) and Jones et al. (US 6,307,836).

Regarding claim 1, Zhang discloses a statistical multiplexer (808), which comprises the multiplex gateway device of the present invention, that receives compressed video input streams from several sources and combines these input streams into a single bit stream as its output on channel (810) (col. 14, line 57 – col. 15, line 3; see also Fig. 8). Zhang also discloses,

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in Fig. 11, an integrated bit rate conversion device and ATM cell converter (1100) that is coupled to an ATM network (1106) (col. 17, lines 56-62). Furthermore, a rate conversion scheme is used to accommodate the differences in bit rate between the MPEG-2 transport stream and the available connection capacity on the ATM network when a constant bit rate (CBR) connection is to be established (col. 18, lines 21-34). Zhang does not expressly disclose that the statistical multiplexer connects to an ATM network, nor does Zhang disclose that there are two statistical multiplexers, each connecting a different local area ATM network to a public ATM network. Duault et al. discloses an architecture in which two customer premises ATM networks, each with a number of ATM endpoints, connect to a public ATM network (Fig. 1). As seen in Fig. 1, two private ATM switches provide the respective connections for each of the customer premises ATM networks. Jones discloses that a statistical multiplexer (116, Fig. 1) supports coalescing data signals from multiple subscribers for delivery of a collective packetized signal to the transport network. The reason for doing so being that consolidating access to multiple service types over one connection results in economic savings to the consumer and the carrier (col. 6, line 61 – col. 7, line 4). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the statistical multiplexer of Zhang in place of the private ATM switches in the invention of Duault to statistically multiplex the outputs of the ATM endpoints in the customer premises networks onto the public ATM network. One would have been motivated to do so for economical benefits to both consumers, located at the customer premises networks, and to the carrier providing access to the public ATM network.

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10. Claims 2-7, 9-14, 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US 6,181,711) in view of Duault et al. (US 6,108,336) and Jones et al. (US 6,307,836) as applied to claim 1 above, and further in view of Grossglauser et al. (US 5,604,731).

Regarding claims 2, 7, 13, 14 and 20, the system provided by Zhang et al. in view of Duault et al. and Jones et al. provides for the output of a statistical multiplexer to be of the constant bit rate (CBR) type. That system fails to expressly disclose a piece-wise constant bit rate that varies in a predetermined time interval. Grossglauser discloses a system and method for renegotiated bit rate service that can readily be applied to an existing CBR network architecture. This renegotiated constant bit rate (RCBR) invention allows for the implementation of an intelligent data traffic management systems that are responsive to the rate at which new calls or request for connections enter and leave the network and occurrences of data transmission peaks (col. 3, lines 1-12). The RCBR function is performed with the use of a Network Renegotiation Controller (213). Since the RCBR system provides CBR traffic that changes its rate from time to time, the RCBR system meets the limitation of a piece-wise constant bit rate system. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the RCBR system of Grossglauser to monitor and renegotiate the rate of the CBR output of the system provided by Zhang et al. in view of Duault et al. and Jones et al. One of ordinary skill in the art would have been motivated to do this to adapt the transmission rate according to changing network conditions and to avoid exceeding the maximum bit rate of the transmission channel.

Regarding claim 3, as described above, the system provided by Zhang et al. in view of Duault et al. and Jones et al. includes two statistical multiplexers of Zhang as the gateway



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between customer premises networks and an ATM public network. Zhang does not expressly disclose that the statistical multiplexers work in reverse, i.e. as demultiplexers at a reception end of a transmission. However, in the system provided by Zhang et al. in view of Duault et al. and Jones et al. it is obvious that the statistical multiplexers would operate as statistical demultiplexers as well. The statistical multiplexers of Zhang would need to operate also as demultiplexers in order to receive data and resolve the video streams to their original forms.

Regarding claim 4, the system provided by Zhang et al. in view of Duault et al. and Jones et al. thus far includes using statistical information to multiplex ATM cells and transmitting the statistically multiplexed ATM cells to a public ATM network. That system does not expressly disclose using mean rate and peak rate of ATM cells as the statistical information. However, Zhang discloses that digital video encoders must assume a particular bit rate profile, whether it is constant bit rate (CBR) or a variable bit rate (VBR). The word "profile" refers to the fact that bit rate may not be constant, but variable under certain constraints, such as peak bit rate, average bit rate, minimum bit rate, etc. (col. 9, lines 2-12). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the mean rate and peak rate of ATM cells carrying digital video information as the statistical information used in multiplexing the ATM cells of the system provided by Zhang et al. in view of Duault et al. and Jones et al. One of ordinary skill in the art would have been motivated to do this be able to multiplex VBR encoded digital video traffic and still maintain the CBR output of the multiplexer.

Regarding claims 5, 9-12, 16, 17, 21 and 22, Zhang discloses that the statistical multiplexing process involves performing a rate addition to determine a rate addition result (col. 14, line 47-65). The system provided by Zhang et al. in view of Duault et al. and Jones et al.

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fails to expressly disclose using a rate addition result for calculating a piece-wise constant bit rate. Grossglauser discloses renegotiating the transmission bit rate according to changes in the amount of available bandwidth in the network (col. 7, lines 5-27). This is performed with the use of a Network Renegotiation Controller (213). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the rate addition of Zhang to calculate a renegotiated constant bit rate for the output of the statistical multiplexer in the system of Zhang et al. in view of Duault et al. and Jones et al. One of ordinary skill in the art would have been motivated to do this in order to make sure the sum output of the statistical multiplexer did not exceed the allowed bandwidth of the network, and if it did, to change it accordingly.

Regarding claim 6, as described above, the system provided by Zhang et al. in view of Duault et al. and Jones et al. includes two statistical multiplexers of Zhang as the gateway between customer premises networks and an ATM public network. Zhang does not expressly disclose that the statistical multiplexers work in reverse, i.e. as demultiplexers at a reception end of a transmission. However, in the system provided by Zhang et al. in view of Duault et al. and Jones et al. it is obvious that the statistical multiplexers would operate as statistical demultiplexers as well. The statistical multiplexers of Zhang would need to operate also as demultiplexers in order to receive data and resolve the video streams to their original forms.

Regarding claims 18, 19, 23 and 24, the system provided by Zhang et al. in view of Duault et al. and Jones et al. thus far includes using statistical information to multiplex ATM cells and transmitting the statistically multiplexed ATM cells to a public ATM network. Also, as mentioned above, it is obvious to combine the renegotiated constant bit rate feature of

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Grossglauser, which represents a piece-wise constant bit rate function, with the system of Zhang et al. in view of Duault et al. and Jones et al.

11. Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US 6,181,711) in view of Duault et al. (US 6,108,336) and Jones et al. (US 6,307,836) as applied to claim 1 above, and further in view of Applicant's admitted prior art.

Regarding claims 8 and 15, the system provided by Zhang et al. in view of Duault et al. and Jones et al. fails to expressly disclose that the plurality of first and second terminal devices are ITU recommendation H.310 compliant. Applicant admits as prior art a system for sending information from H.310 terminals in a customer premises network over a public ATM network to other H.310 terminals in another customer premises network (Figure 1 of the present invention). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use H.310 compliant terminals in the system provided by Zhang et al. in view of Duault et al. and Jones et al. One of ordinary skill in the art would have been motivated to do this to allow users of H.310 terminals to take advantages of the statistical multiplexing gains offered by the combination system.

### *Conclusion*

12. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Thomas E. Volper



May 11, 2004



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